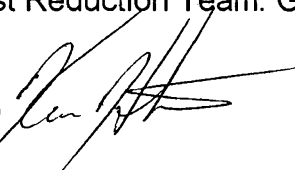


MEMO

To: DSS8+ Cost Reduction Team: G. Nush, G. Terbush, J. Terbush, S. Wickham

From: Ken Horton 

Date: 03/10/94

Subject: Cost Reduction Project, DSS8+

In order to keep our existing products more competitive in the marketplace, we are embarking on a major cost reduction program. This is the first in a series of memos that will cover the targeted cost reductions and target dates for achieving those reductions. Because DSS8+ is our highest volume product, I have chosen this product as the first product to attack.

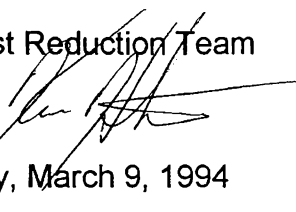
Attached you will find a memo, describing in detail the targeted cost reduction targets. In addition you will find a costed bill of materials, so that you will have the opportunity to identify other potential savings in addition to those specifically cited in the memo.

Please plan to attend a meeting Monday, 3/14 at 2:00, in the 657 conference room regarding this subject. I want to co-ordinate efforts, and look closely at the bill of material to see if there are other ways to pry more pennies out of this bill. In particular, materials needs engineering's input on how to use possible elimination or substitution of parts to get maximum leverage in negotiations with parts suppliers.

Thanks


cc: G. Bucas, J. Boyer

MEMO

To: DSS8+ Cost Reduction Team
From: Ken Horton 
Date: Wednesday, March 9, 1994
Subject: Cost Reduction Project, DSS8+

Product Status:

- ◆ Sell Rate: 600/month
- ◆ Inventory Status: 1300 Units, 2.2 month's supply
- ◆ 1500 piece kit scheduled for 4/1, units begin arriving 4/25. Most material for this kit is fully committed (savings potential very limited)
- ◆ Changes will be largely targeted at the next kit, 6/10/94.
- ◆ Current PC Assembly Standard Cost: \$24.87
- ◆ Current Ship Assembly standard cost: \$34.29

Targeted Reductions:

1. **Eliminate the variable filter circuit**, and replace it with a fixed filter. This feature is not widely used by customers, but costs \$4.23 to implement. Below is a schedule for actions required to make the circuit change.

Required action	Responsibility	Deadline
Circuit redesign	The Terbushes	4/1/94
Board layout	M. Allen	4/15/94
Prototype?	G. Terbush	4/30/94
Production order	S. Wickham	5/10/94

Targeted savings from eliminating the variable filter: \$4.18.

2. **Reduce assembly labor costs.** Seek reductions in contract manufacturer's charges and streamline GVP assembly and labeling processes.

Cost	Current Standard	Current Actual	Target	Responsibility	Target Date
Contractor	\$6.91	\$6.25	\$5.85	K. Horton	5/29/94
GVP	\$1.00	\$0.85	\$0.65	K. Horton	4/20/94

Targeted savings from labor cost reductions, \$1.41.

3. Reduce Doc. Pack. costs. Current standard: \$6.25. Current Inventory: 3,150 (manuals). This supply will last through August of 1994.

The manual will soon be changed to reflect the new Version 3.0 of the software. The manual for the software will be separated from the hardware, and the manual will be used for DSS8+, Flipper and DSS16 (Amiga). In the process, the manual will be greatly streamlined, with all non-essential text and illustrations being moved to a "Readme" file. A small hardware only manual will then be packaged with each product.

The target will be to reduce the Doc. Pack. cost, which includes manual, disks, disk labels and warranty card to a new cost of \$3.25, for a savings of \$3.00.

4. Parts procurement savings. We will focus on four parts to obtain savings. The redesign will give us the option to leverage some of the parts suppliers with possible substitutions, so work on price reductions for parts must go hand-in-hand with the redesign effort. Below is a list of the targeted parts:

Part & Description	GVP Part Number	Current Cost	Target Cost	Strategy	Savings Date
National LM324	620039	\$0.56	\$0.50	?	5/5/94
Dallas DS1267	630118	\$2.34	\$1.95	?	5/5/94
AD 7569JPADC	630117	\$3.75	\$2.00	Substitute Maxim part	5/5/94
Bare Board	500031-04	\$2.00	\$1.25	Large buy, off-shore	8/1/94
Casework		\$0.75	\$0.65	Supplier has room	8/1/94

Together the above mentioned parts comprise 50% of the material cost of the PCBA. Other parts may also contain potential savings, which materials, operations, and engineering should discuss as a group. Material savings are targeted at \$2.25.

With these combined savings targets, we can pull \$10.80 out of the cost of this product over the next five months. This will represent a 32% reduction in the cost of the unit, and will keep the product volumes up for a longer period than will be otherwise possible. The savings over the next year, assuming sales of 5000 units over that time, will be over \$45,000.

C O S T E D B I L L O F M A T E R I A L

Ranges: Parent Item No 100515 Thru 100515

Active Items

With No Blow Through

No Selection On Basis Of Effectivity Date

Parent Item 100515			SHIP ASSY, DSS8+ PCR #930072		Low Level Code 1		Cost On File	34.2895		
Component Item	Seq No	Low Lev Code	Component Description	Purchased Or Mfg	Act Flag	Scrap Factor	Uom	Qty Per Parent	Item Std Cost	Extended Cost
940051	1	2	BOX, SHIP 101/8x77/8x117/8 PCR #930072 DSS8+ 5/US 25/EU	P	A	.0	EA	.200000	.4225	.0845
940131	10	2	BOX, PLASTIC CLAMSHELL DSS8+ 3/1/93	P	A	.0	EA	1.000000	.6800	.6800
212011	20	2	FINAL ASSY, DSS8+ MODULE 3/16/93	M	A	.0	EA	1.000000	** See Components Below **	
416003-04	10	3	PC ASSY, DSS 8+ R4.02 PCR #930092	M	A	.0	EA	1.000000	24.8661	24.8661
520015	15	2	CASE, BOTTOM DSS8+ PLASTIC 8/92	P	A	.0	EA	1.000000	.3000	.3000
520016	20	2	CASE, TOP DSS8+ PLASTIC 8/92	P	A	.0	EA	1.000000	.3000	.3000
520017	30	2	CASE, BACK PANEL DSS8+ PLASTIC 8/92	P	A	.0	EA	1.000000	.1500	.1500
910020	40	2	SCREW, 48-2 4 x 3/8 3/16/93	P	A	.0	EA	2.000000	.0192	.0384
910018	50	2	SCREW, THUMB 4-40 DSS8+ MILD STEEL ZINC CLEAR 8/92	P	A	.0	EA	2.000000	.2453	.4906
941188	65	3	LABEL, SET DSS8+ FRONT/BACK PCR #930082	P	A	.0	EA	1.000000	.1000	.1000
999998	100	6	GVP LABOR	P	A	.0	EA	2.000000	.2500	.5000
300023	30	2	DOC PKG, DSS 8+ PCR #930103	M	A	.0	EA	1.000000	** See Components Below **	

C O S T E D B I L L O F M A T E R I A L

Parent Item 100515

SHIP ASSY, DSS8+
PCR #930072

Low Level Code 1 Cost On File 34.2895

Component Item	Seq No	Low Lev Code	Component Description	Purchased Or Mfg	Act Flag	Scrap Factor	Uom	Qty Per Parent	Item Std Cost	Extended Cost
961047-01	10	3	DISK PROG, DSS8+ INSTALL V2.03 M PCR # 8/13/93		A	.0	EA	1.000000	.4900	.4900
961048-01	20	3	DISK PROG, DSS8+ SAM/UTL V2.03 M PCR # 8/13/93		A	.0	EA	1.000000	.4900	.4900
920038	30	2	MANUAL, DSS 8+ USER GUIDE 3/16/93 162 pgs	P	A	.0	EA	1.000000	5.1800	5.1800
921001	40	4	CARD, WARRANTY, GENERIC	P	A	.0	EA	1.000000	.0400	.0400
921003	45	4	CARD, SFTWR LICENSE COMMODORE WORKBENCH	P	A	.0	EA	1.000000	.0260	.0260
941140	80	5	LABEL, BLANK BAR CODE SERIAL	P	A	.0	EA	3.000000	.0077	.0231
999998	90	6	GVP LABOR	P	A	.0	EA	1.000000	.2500	.2500
941140	41	5	LABEL, BLANK BAR CODE SERIAL	P	A	.0	EA	4.000000	.0077	.0308
999998	100	6	GVP LABOR	P	A	.0	EA	1.000000	.2500	.2500

Total Component Cost Of Parent: 34.2895

C O S T E D B I L L O F M A T E R I A L

Ranges: Parent Item No 416003-04 Thru 416003-04
 Active Items
 With No Blow Through
 No Selection On Basis Of Effectivity Date

Parent Item 416003-04		PC ASSY, DSS 8+ R4.02		Low Level Code 3		Cost On File		24.8661		
		PCR #930092								
Component Item	Seq No	Low Lev Code	Component Description	Purchased Or Mfg	Act Flag	Scrap Factor	Uom	Qty Per Parent	Item Std Cost	Extended Cost
941028	3	5	LABEL, PC .2 x .65"	P	A	.0	EA	1.000000	.0072	.0072
500031-04	10	4	PCB, DSS8+ R4.00 3/12/93	P	A	.0	EA	1.000000	2.0000	2.0000
721049	20	6	CAP, .22 UF, 50V, Z5U, CC 1206 P VJ1206U224MXAAT		A	.0	EA	5.000000	.0820	.4100
721018	30	8	CAP, 4.7 UF SMT B KEMET T491B475K010AS	P	A	.0	EA	2.000000	.1140	.2280
721104	32	4	CAP, .47 UF, TANT, SMT A KEMET T491A474K020AS	P	A	.0	EA	3.000000	.1100	.3300
721048	40	6	CAP, .1 UF Z5U CHIP, 0805 VJ0805U104PXAAR	P	A	.0	EA	8.000000	.0330	.2640
721037	50	6	CAP, 68 PF NPO SMT0805 VITRAMON VJ0805A680JXAAT	P	A	.0	EA	1.000000	.0260	.0260
721053	70	6	CAP, 100 UF 6V SMT D KOMET T491107K006AS	P	A	.0	EA	1.000000	.2400	.2400
721004	80	6	CAP, 10 UF 16V SMT C KEMET T491106K016AS	P	A	.0	EA	1.000000	.2000	.2000
721023	81	8	CAP, 2200 PF SMT0805	P	A	.0	EA	2.000000	.0330	.0660
721007	90	8	CAP, 1 UF 16V SMT A KEMET T491A105K016AS	P	A	.0	EA	3.000000	.1150	.3450
721031	100	4	CAP, 47 UF 10V 10% D CASE SPRAGUE 293D476X9010D2T	P	A	.0	EA	1.000000	.2750	.2750

C O S T E D B I L L O F M A T E R I A L

Parent Item 416003-04 PC ASSY, DSS 8+ R4.02 Low Level Code 3 Cost On File 24.8661
 PCR #930092

Component Item	Seq No	Low Lev Code	Component Description	Purchased Or Mfg	Act Flag	Scrap Factor	Uom	Qty Per Parent	Item Std Cost	Extended Cost
950016	110	4	CONN, 16PJ528	P	A	.0	EA	1.000000	.2300	.2300
950021	120	4	JACK, RT > RCA MOUSER 16PJ097	P	A	.0	EA	2.000000	.2420	.4840
950048	130	4	CONN, DB25 MALE BASIC STYLE ASSMAN ADS25A/KG-TXXX3 2/3/93	P	A	.0	EA	1.000000	.6500	.6500
680019	140	4	TRANS, 2N3904 SOT23	P	A	.0	EA	1.000000	.0620	.0620
711137-01	150	4	RES, 4.75K, RC, 1%, 0805 KOA SPEER RK73HA4751FT	P	A	.0	EA	3.000000	.0100	.0300
711116-01	160	4	RES, 10K OHM, 1%, 0805 DALE CRCW-0805-100-1002-FT	P	A	.0	EA	5.000000	.0100	.0500
711143-01	170	4	RES, 3.32K, RC, 1%, 0805 KOA SPEER RK73HA3321FT	P	A	.0	EA	1.000000	.0100	.0100
711141-01	180	4	RES, 1K, RC, 1%, 0805 KOA SPEER RK73HA13FT	P	A	.0	EA	4.000000	.0100	.0400
711140-01	190	4	RES, 475K, RC, 1%, 0805 KOA SPEER RK73HA4753FT	P	A	.0	EA	1.000000	.0100	.0100
711139-01	200	4	RES, 6.19K, RC, 1%, 0805 KOA SPEER RK73HA6191FT	P	A	.0	EA	3.000000	.0100	.0300
711177-01	210	4	RES, 20K 0805 CHIP 1% SPRAGUE CRCW08052002FT 1/27/93	P	A	.0	EA	3.000000	.0100	.0300
711176-01	220	4	RES, 475 OHM 0805 CHIP 1% SPRAGUE CRCW08054750FT 1/27/93	P	A	.0	EA	2.000000	.0100	.0200
711138-01	230	5	RES, 47.5 OHM, RC, 1%, 0805 KOA SPEER RK73HA47R5FT	P	A	.0	EA	1.000000	.0100	.0100

C O S T E D B I L L O F M A T E R I A L

Parent Item 416003-04 PC ASSY, DSS 8+ R4.02 Low Level Code 3 Cost On File 24.8661
 PCR #930092

Component Item	Seq No	Low Lev Code	Component Description	Purchased Or Mfg	Act Flag	Scrap Factor	Uom	Qty Per Parent	Item Std Cost	Extended Cost
711175-01	240	4	RES, 51.1K 0805 CHIP 1% SPRAGUE CRCW08055112FT 1/27/93	P	A	.0	EA	2.000000	.0100	.0200
620039	250	4	IC, LM324, SO 14 PIN NATIONAL LM324	P	A	.0	EA	1.000000	.5570	.5570
600109	260	6	IC, 74HC4053 SOIC 16PIN SIGNETICS N74HC4053D -sig only	P	A	.0	EA	1.000000	.4300	.4300
630119	270	4	IC, MAX270CWP, 50-20 MAXXIM MAX270CWP	P	A	.0	EA	1.000000	4.2300	4.2300
600136	280	6	IC, 74HC74, SMT MOTOROLA MC74HC74D	P	A	.0	EA	1.000000	.2350	.2350
630118	290	4	IC, DS1267-100, SO-16 DALLAS DS1267-100	P	A	.0	EA	1.000000	2.3400	2.3400
600182	300	4	IC, 74HC00, SO 14 PIN	P	A	.0	EA	1.000000	.3500	.3500
630117	310	4	IC, AD7569JPADC, PLCC 28 PIN	P	A	.0	EA	1.000000	3.7500	3.7500
999999	350	7	SUBCONTRACT LABOR	P	A	.0	EA	19.500000	.3542	6.9069

Total Component Cost Of Parent: 24.8661

MEMO

To: G. Nush, G. Terbush, J. Terbush, S. Wickham
From: Ken Horton
Date: Tuesday, March 15, 1994
Subject: DSS8 Cost Reductions

This memo follow up our meeting of 3/14, in which we discussed objectives for cost reducing the DSS8+. Our discussions resulted in the following targets:

The Terbushes: Will remove the variable filter (Maxxim CW270P) and the supporting circuitry. This will reduce the part count by 9 and the material cost by \$4.56. The circuitry for the filter will remain on the board, so that 'high end' DSS8+'s can still be built and be sold as upgrades. The schematic for this new design will be ready by 4/4/94. The new layout will include the FCC ID number in the copper, to eliminate the need for the FCC label on the back of the DSS unit.

Total cost savings, \$4.61 in material, and \$0.75 in labor for a **total of \$5.36.**

Gary Nush: The current manual will be consolidated, so that the majority of it is contained on a disk, rather than as a paper manual. The other new products which will use the same software manual, DSS16 and Flipper, which have different price points, make this consolidation somewhat tricky, but Gary felt that a new manual with a cost of less than \$2.00, was doable. The manual will be complete by 5/30.

Total cost savings, \$3.18.

Ken Horton: The assembly vendor(s) will continue to be pressured to reduce price. Expected savings from the current standard of \$6.91 will be \$1.05. We will continue to improve our assembly efficiencies, and will reduce in house labor by \$0.30. Savings are being steadily implemented. Costs are now \$0.75 lower than standard, and will continue to progress toward the goal.

Total labor cost savings, \$1.35.

Steve Wickham: Much of the potential material saving has already been wrung out of this product. Steve committed to an additional \$1.15.

New material savings: \$1.15.

Total cost reduction target for kit of 6/10/94; \$11.04 per ship assembly.

cc: Jeff Boyer, Gerard Bucas

**this document was generously
contributed by
robert miranda**

**scanned by:
commodore international historical society
www.commodore.international**